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13. ABSTRACT *(Maximum 200 words)*

The general research area was to develop shell finite elements for modeling tires. We started with a survey of the literature and the identification of several potential areas in which we could make some contributions. One was the extension of thick laminate theory to include hyperelastic effects. A second was the development of a suitable finite element discretization method for shells undergoing large deformations. The "drilling" degrees of freedom were judged to be an important aspect of that development, and a separate study was begun on that. A third aspect was dynamic contact modeling. Mr. Maasha surveyed the literature and began to write some code including the drilling degrees of freedom which would have compared the existing formatuations. Our intent was to identify which, if any, of the existing formulations for the drilling degrees of freedom we should use. Later, Mr. Warner began work on modeling contact as an intermittent slip/stick problem with frictions.

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December 4, 1996

Dr. Arje Nachman
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110 Duncan Avenue, Suite B115
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Dear Dr. Nachman:

I have just been informed that, although my statement of work was rejected for the AASERT grant that you "illegally" had transferred to me, resulting in the money being taken away, I still must prepare a final report. Since the project was very brief, the final report will also be very brief.

Student Support: First I chose a student who had been admitted to Georgia Tech from Puerto Rico. He was to have begun Fall 1995. In August he notified me that he would be starting in Winter 1996. In December he notified me that he would not be coming to Georgia Tech. I then hired Mr. Maasha, a graduate student who had already been at Georgia Tech. However, his performance on the project was substandard, and I fired him after less than two quarters. I then started with Mr. Warner, another student who had been at Georgia Tech for a while, and he had worked less than two months when I was notified that the project was being terminated.

Research: The general research area was to develop shell finite elements for modeling tires. We started with a survey of the literature and the identification of several potential areas in which we could make some contributions. One was the extension of thick laminate theory to include hyperelastic effects. A second was the development of a suitable finite element discretization method for shells undergoing large deformations. The "drilling" degrees of freedom were judged to be an important aspect of that development, and a separate study was begun on that. A third aspect was dynamic contact modeling. Mr. Maasha surveyed the literature and began to write some code including the drilling degrees of freedom which would have compared the existing formulations. Our intent was to identify which, if any, of the existing formulations for the driilling degrees of freedom we should use. Later, Mr. Warner began work on modeling contact as an intermittent slip/stick problem with friction. He had just gotten started when all had to stop.

Thank you for your efforts in this matter. Maybe I will one day be able to do some work for the Air Force and we'll cross paths again.

Yours truly,

Dewey H. Hodges

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